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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,832	07/09/2003	Takahiro Kase	240045US2S	8120
22850	7590	05/25/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WILLOUGHBY, TERRENCE Ronique	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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11:00

<b>Office Action Summary</b>	<b>Application No.</b> 10/614,832	<b>Applicant(s)</b> KASE ET AL.	
	<b>Examiner</b> Terrence R. Willoughby	<b>Art Unit</b> 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☒ Claim(s) 1 and 4-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

Applicant amendment filed on 3/20/06 has been entered. Accordingly claim 1 has been amended and no claims have been cancelled. No new claims were added. It also included remarks/arguments.

#### ***Claim Objections***

1. Claim 1 is objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "data time length ..." is indefinite and very unclear how the fault detecting relay element which receives the digital data to perform computation to detect a fault within a zone that is narrower than the predetermined zone in terms of data time length when the zone-1 distance relay element and the fault detecting relay element and a detecting operation of the first directional relay element all receive digital data sampled by the A/D converter which are received from an object to be protected?

2. Claims 4-14 are objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 4-14, the phrase "a setting value" is indefinite and very unclear what the setting value is? The examiner interprets the setting value to be the selected area, range or zone portions being covered on the transmission line of the protected relay.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schweitzer, III (US 5,325,061) and in view of Wang (US 6,137,666).

Regarding claim 1, Schweitzer discloses the claimed said distance relay apparatus (col. 1, ll. 5-9) comprising: a sampling element which samples an amount of electricity of a voltage and current, which are received from an object to protect, at regular intervals (abstract, ll. 1-3, col. 1, ll. 34-36, col. 3, ll. 57-58); a first directional relay element to perform computation to detect a fault, which occurs in the forward direction from an installing point of the relay apparatus, based on a computing equation (col. 4, ll. 23-30; col. 1, ll. 33-35); a zone-1 distance relay element to perform computation to detect a fault within a predetermined zone viewed from the installing point of the relay apparatus, based on computing equation (col. 3, ll. 52-63; col. 4, ll. 32-45). Schweitzer does not disclose the claimed said A/D converting element which converts the amount of electricity sampled by the sampling element into digital data; a fault detecting relay element, and a logic element.

However, Wang (Fig. 2) discloses a protective relay apparatus with an A/D converter (7) which converts the amount of electricity sampled by the sampling element into digital data and a fault detecting element (col. 6, ll. 65-67 and col. 7, ll. 1-47) which receives digital data to perform computation to detect a fault within a zone that is narrower than the predetermined zone in terms of data time length (col. 2, ll. 51-53) which is shorter than that used for the computation of the zone-1 distance relay element (col. 1, ll. 38-47; col. 2, ll. 13-21); and a logic element which outputs a relay signal in

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accordance with a detecting operation of a least one of the zone-1 distance relay and the fault detecting relay element and a detecting operation of the first directional relay element (col. 2, ll. 43-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a zone-1 distance relay element, a fault detecting relay element, and a logic element all taught by Wang combine with the first directional relay of the protective relay apparatus taught by Schweitzer, III to provide a high speed protective relay by improving the reliability of the trip indication outputs from the distance or current and voltage relays.

Regarding claim 2, Schweitzer, III in view of Wang discloses a distance relay apparatus according to claim 1, wherein the first directional relay element (Schweitzer, III, col. 4, ll. 23-30; col. 1, ll. 33-35), the zone-1 distance relay element (Schweitzer, col. 3, ll. 52-63; col. 4, ll. 32-45) and the fault detecting relay element (Wang, col. 6, ll. 65-67 and col. 7, ll. 1-47) receive the digital data. Wang discloses digital filters (Fig. 5, 9, 10), which filter the digital data and perform computation to detect a fault within a predetermined range from the relay element to the point of fault (col. 4, ll. 32-col. 5, and ll. 1-3). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the time required for filtering the digital data in the digital filter connected to the fault detecting relay element would necessarily be shorter than the time required for filtering the digital data in the digital filter connected to the first directional relay element and the zone-1 distance relay element when the fault detecting relay element has a shorter data time length (col. 2, ll. 51-53) than both of the zone-1 distance relay element and the first directional relay element.

Regarding claim 3, please refer to the recited rejection mentioned above in claim 2.

Regarding claims 4-6, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claims 1 and 2 above. Schweitzer, III further discloses a second directional relay element (col. 1, ll. 26-32; col. 3, ll. 45-63; col. 4, ll. 23-45) having a setting value that is larger than that of the first directional relay element. Wang discloses the logic element outputs the relay in one of a case where both the second directional and the fault detecting relay element are operated and a case where both the first directional relay element and the zone-1 distance relay element are operated(col. 2, ll. 43-49).

Regarding claims 7-9, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claims 1 and 2 above. Wang discloses the fault detecting relay element having a setting value that is smaller than a distance setting value of the zone-1 distance relay element (col.1, ll. 38-47;col. 2, ll. 13-21). Schweitzer, III discloses different types of relays including a mho relay element (col. 1, ll. 15-20).

Regarding claim 10, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claim 4 above. Wang discloses the fault detecting relay element having a setting value that is smaller than a distance setting value of the zone-1 distance relay element (col.1, ll. 38-47;col. 2, ll. 13-21). Schweitzer, III discloses different types of relays including a mho relay element (col. 1, ll. 15-20).

Regarding claims 11-13, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claims 1 and 2 above. Wang discloses the fault detecting

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relay element having a setting value that is smaller than a distance setting value of the zone-1 distance relay element (col.1, ll. 38-47; col. 2, ll. 13-21). Schweitzer, III discloses different types of relays including a reactance relay element (col. 4, ll. 53-60).

Regarding claim 14, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claim 4 above. Wang discloses the fault detecting relay element having a setting value that is smaller than a distance setting value of the zone-1 distance relay element (col.1, ll. 38-47; col. 2, ll. 13-21). Schweitzer, III discloses different types of relays including a reactance relay element (col. 4, ll. 53-60).

Regarding claims 15-17, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claim 3. Wang discloses the fault detecting relay element includes an undervoltage relay (col. 5, ll. 54-58) which detects that a current becomes not lower than a predetermined level.

Regarding claim 18, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claim 4 above. Wang discloses the fault detecting relay element includes an undervoltage relay (col. 5, ll. 54-58) which detects that a current becomes not lower than a predetermined level.

Regarding claims 19-21, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claim 3. Wang discloses the fault detecting relay element includes an overcurrent relay (col. 5, ll. 52-54) which detects that a current becomes not lower than a predetermined level.

Regarding claim 22, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claim 4. Wang discloses the fault detecting relay element

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includes an overcurrent relay (col. 5, ll. 52-54) which detects that a current becomes not lower than a predetermined level.

Regarding claims 23-25, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claims 1 and 2 above. Wang discloses the fault detecting relay element (col. 6, ll. 65-67 and col. 7, ll. 1-47) includes an impedance relay (col. 1, 11. 56-60), which obtains an impedance from the voltage and current by computation and detects the impedance becomes not higher than a predetermined level.

Regarding claim 26, Schweitzer, III in view of Wang discloses the distance relay apparatus according to claim 4 above. Wang discloses the fault detecting relay element (col. 6, ll. 65-67 and col. 7, ll. 1-47) includes an impedance relay (col. 1, 11. 56-60), which obtains an impedance from the voltage and current by computation and detects the impedance becomes not higher than a predetermined level.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrence R. Willoughby whose telephone number is 571-272-2725. The examiner can normally be reached on 8-5pm.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRW  
5/11/06



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